

AMUSING SEQUENCE

Given a sequence of natural numbers .

Find it's N'th term.

$a_1=3, a_2=9, a_3=30, a_4=101, a_5=358, a_6=1443... \dots, a_N$

Input

Single line containing a natural number N

Output

Print N'th term of the sequence modulo 10^9+7 .

Constraints

- $1 \leq N \leq 100$

Example

Input:

5

Output:

358